



BILLING CODE 3510-22-P

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

RIN 0648-XF370

Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to the Sand Point City Dock Replacement Project in Sand Point, Alaska

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Notice; Issuance of an Incidental Harassment Authorization.

SUMMARY: In accordance with the regulations implementing the Marine Mammal Protection Act (MMPA) as amended, notification is hereby given that NMFS has issued an incidental harassment authorization (IHA) to the Alaska Department of Transportation and Public Facilities (ADOT&PF) to incidentally harass, by Level A and Level B harassment, marine mammals during construction activities associated with the Sand Point City Dock Replacement Project in Sand Point, Alaska.

DATES: This Authorization is valid from August 1, 2018 through July 31, 2019.

FOR FURTHER INFORMATION CONTACT: Rob Pauline, Office of Protected Resources, NMFS, (301) 427-8401. An electronic copy of ADOT&PF's application and supporting documents, as well as a list of the references cited in this document, may be obtained online at: www.nmfs.noaa.gov/pr/permits/incidental/construction.htm. In case of problems accessing these documents, please call the contact listed above.

SUPPLEMENTARY INFORMATION:

Background

Sections 101(a)(5)(A) and (D) of the MMPA (16 U.S.C. 1361 *et seq.*) direct the Secretary of Commerce to allow, upon request, the incidental, but not intentional, taking of small numbers of marine mammals by U.S. citizens who engage in a specified activity (other than commercial fishing) within a specified geographical region if certain findings are made and either regulations are issued or, if the taking is limited to harassment, a notice of a proposed authorization is provided to the public for review.

An authorization for incidental takings shall be granted if NMFS finds that the taking will have a negligible impact on the species or stock(s), will not have an unmitigable adverse impact on the availability of the species or stock(s) for subsistence uses (where relevant), and if the permissible methods of taking and requirements pertaining to the mitigation, monitoring and reporting of such takings are set forth.

NMFS has defined “negligible impact” in 50 CFR 216.103 as an impact resulting from the specified activity that cannot be reasonably expected to, and is not reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival.

The MMPA states that the term “take” means to harass, hunt, capture, kill or attempt to harass, hunt, capture, or kill any marine mammal.

Except with respect to certain activities not pertinent here, the MMPA defines “harassment” as: any act of pursuit, torment, or annoyance which (i) has the potential to injure a marine mammal or marine mammal stock in the wild (Level A harassment); or (ii) has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption

of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering (Level B harassment).

National Environmental Policy Act

To comply with the National Environmental Policy Act of 1969 (NEPA; 42 U.S.C. §§ 4321 *et seq.*) and NOAA Administrative Order (NAO) 216-6A, NMFS must review our proposed action (*i.e.*, the issuance of an incidental harassment authorization) with respect to potential impacts on the human environment.

This action is consistent with categories of activities identified in CE B4 of the Companion Manual for NOAA Administrative Order 216-6A, which do not individually or cumulatively have the potential for significant impacts on the quality of the human environment and for which we have not identified any extraordinary circumstances that would preclude this categorical exclusion. Accordingly, NMFS has determined that the issuance of the IHA qualifies to be categorically excluded from further NEPA review and signed a Categorical Exclusion memo in September 2017.

Summary of Request

On September 16, 2016, NMFS received an application from ADOT&PF for the taking of marine mammals incidental to replacing the city dock in Sand Point, Alaska. On April 11, 2017, ADOT&PF submitted a revised application that NMFS determined was adequate and complete. ADOT&PF proposed to conduct in-water activities that may incidentally take, by Level A and Level B harassment, nine species of marine mammals. Proposed activities included as part of the Sand Point City Dock Replacement Project with potential to affect marine mammals include impact hammer pile driving and vibratory pile driving and removal. Neither

ADOT&PF nor NMFS expect mortality to result from this activity and, therefore, an IHA is appropriate.

Description of Specified Activities

Overview

We provided a description of the proposed action in our *Federal Register* notice announcing the proposed authorization (82 FR 31400; July 6, 2017; 31400-31402). Please refer to that document; we provide only summary information here.

ADOT&PF plans to construct a new dock in Sand Point, Alaska. Impact and vibratory driving of piles and vibratory pile removal is expected to take place over a total of approximately 32 working days within a 5-month window from August 1, 2018 through December 31, 2018. However, due to the potential for unexpected delays, up to 40 working days may be required. The new dock would be supported by approximately 52 round, 30-inch-diameter, 100-foot-long permanent steel pipe piles. Fender piles installed at the dock face would consist of 8 round, 24-inch-diameter, 80-foot-long permanent steel pipe piles. The single mooring dolphin would consist of 3 round, 24-inch-diameter, 120-foot-long permanent battered steel pipe piles. This equates to a total of 63 permanent piles. Up to 90 temporary piles would be installed and removed during construction of the dock and would be either H-piles or pipe piles with a diameter of less than 24 inches. Table 1 provides detailed information regarding pile size and type as well as effort required for installation and removal.

Table 1. Pile details and estimated effort required for pile installation.

Pile Type	Diameter	Number of piles	Maximum piles per day	Hours per day	Estimated minutes per pile	Anticipated days of effort¹
Vibratory Installation or Removal						
Permanent support pile	30"	52	4	3	45	13

Permanent dolphin pile	24"	3	2	1	30	2
Permanent fender pile	24"	8	4	2	30	2
Installation, temporary support pile	<24" or H-pile	90	6	1.5	15	15
Removal, temporary support pile	<24" or H-pile	90	6	1.5	15	15
Impact Installation						
Permanent support pile	30"	52	4	1.667	25	13
Permanent dolphin pile	24"	3	2	0.33	10	2
Permanent fender pile	24"	8	4	0.20	3	2

¹Vibratory and impact driving of each permanent pile will occur on the same day. Installation and removal of each temporary piles will occur on the same day.

Dates and Duration

In-water pile driving and extraction activities are expected to take place over a total of approximately 32 working days within a 5-month window from August 1, 2018 through December 31, 2018. The issued IHA will be valid for a period of one year in case there are delays. Table 2 illustrates the anticipated number of days required for installation and removal of various pile types. Pile driving and removal may occur for up to 4.5 hours per day. Total driving time for the planned project would consist of approximately 22 hours of impact driving and 85 hours of vibratory driving and removal.

Table 2. Estimated number of days required for pile installation and removal.

Activity	Number of Piles	Days Required
Support pile installation	52	13
Temporary pile installation and removal	90	15

Dolphin pile installation	3	2
Fender pile installation	8	2
Total Days		32
Total Days with 25% contingency		40

Specified Geographic Region

The Sand Point city dock is located in the city of Sand Point, Alaska, on the northwest side of Popof Island, in the western Gulf of Alaska. Sand Point is the largest community in the Shumagin Islands. See Figure 1-1 and 1-2 in ADOT&PF's Application.

Comments and Responses

A notice of NMFS's proposal to issue an IHA to ADOT&PF was published in the *Federal Register* on July 6, 2017 (82 FR 31400). That notice described, in detail, ADOT&PF's activity, the marine mammal species that may be affected by the activity, and the anticipated effects on marine mammals. During the 30-day public comment period, NMFS received only one set of comments, from the Marine Mammal Commission (Commission); the Commission's recommendations and our responses are provided here, and the comments have been posted online at: www.nmfs.noaa.gov/pr/permits/incidental/construction.htm. Please see the Commission's letter for background and rationale regarding the recommendations, which are listed below.

Comment: The Commission expressed interest in NMFS's policy associated with the rounding of numbers to derive take estimates.

Response: We thank the Commission for their interest in the matter.

Description of Marine Mammals in the Area of Specified Activities

We have reviewed the applicants' species information—which summarizes available information regarding status and trends, distribution and habitat preferences, behavior and life history, and auditory capabilities of the potentially affected species—for accuracy and completeness and refer the reader to Sections 3 and 4 of the application, as well as to NMFS's Stock Assessment Reports (www.nmfs.noaa.gov/pr/sars/). A detailed description of the species likely to be affected by the dock replacement project, including brief introductions to the species and relevant stocks as well as available information regarding population trends and threats, and information regarding local occurrence, were provided in the *Federal Register* notice for the proposed IHA (82 FR 31400; July 6, 2017; 31402-31408) since that time, we are not aware of any changes in the status of these species and stocks; therefore, detailed descriptions are not provided here. Please refer to that *Federal Register* notice for these descriptions. Please also refer to NMFS' website (www.nmfs.noaa.gov/pr/species/mammals/) for generalized species accounts.

Table 3 lists all species with expected potential for occurrence near Sand Point and summarizes information related to the population or stock, including potential biological removal (PBR), where known. For taxonomy, we follow Committee on Taxonomy (2016). PBR, defined by the MMPA as the maximum number of animals, not including natural mortalities, that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population, is considered in concert with known sources of ongoing anthropogenic mortality to assess the population-level effects of the anticipated mortality from a specific project (as described in NMFS's SARs). While no mortality is anticipated or authorized here, PBR and annual serious injury and mortality are included here as gross indicators of the status of the species and other threats. For status of species, we provide information regarding

U.S. regulatory status under the MMPA and ESA. Marine mammal abundance estimates presented in this document represent the total number of individuals that make up a given stock or the total number estimated within a particular study area. NMFS's stock abundance estimates for most species represent the total estimate of individuals within the geographic area, if known, that comprises that stock.

All values presented in Table 3 are the most recent available at the time of publication and are available in the 2016 SARs (Muto *et al.*, 2016) online at: (www.nmfs.noaa.gov/pr/sars/draft.htm).

Table 3. Marine Mammal Species Potentially Present in the Project Area.

Species	Stock	ESA/MMPA status; Strategic (Y/N) ¹	Stock abundance (CV, N _{min} , most recent abundance survey) ²	PBR ³	Annual M/SI ⁴	Relative occurrence near Sand Point
Order Cetartiodactyla – Cetacea—Superfamily Odontoceti (toothed whales, dolphins, and porpoises)						
Family Phocoenidae (porpoises)						
Dall's porpoise	Alaska	-;N	83,400 (0.097; n/a; 1993)	Undet	38	Rare
Harbor porpoise	Gulf of Alaska	-; Y	25,987 (0.214; n/a; 1998)	Undet	72	Common
Order Cetartiodactyla – Cetacea – Superfamily Odontoceti (toothed whales, dolphins, and porpoises)						
Family Delphinidae (dolphins)						
Killer whale	Eastern North Pacific Alaska Resident	-; N	2,347 (n/a; 2,347; 2012)	24	1	Uncommon
	Eastern North Pacific Gulf of AK, Aleutian Islands, and Bering Sea Transient	-; N	587 (n/a; 587; 2012)	5.9	1	Uncommon
Order Cetartiodactyla – Cetacea – Superfamily Odontoceti (toothed whales, dolphins, and porpoises)						
Family Balaenopteridae						
Humpback whale	Central North Pacific	n/a/D ⁵ ;Y	10,103 (0.300; 7,890; 2006)	83	24	Uncommon
	Western North Pacific	n/a/D ⁵ ; Y	1,107 (0.300; 865; 2006)	3	2.6	Uncommon
Fin whale	Northeast Pacific	E/D; Y	1,368(n/a , 1,036; 2010)	2.1	0.6	Rare
Minke whale	Alaska	-; N			0	Rare

Order Cetartiodactyla – Cetacea – Superfamily Odontoceti (toothed whales, dolphins, and porpoises)						
Family Eschrichtiidae						
Gray whale	Eastern North Pacific	-; N	20,990 (0.05; 20,125; 2011)	624	132	Rare
Order Carnivora – Superfamily Pinnipedia						
Family Otariidae (eared seals and sea lions)						
Steller sea lion	wDPS	E/D; S	50,983 (n/a; 50,983; 2015)	306	236	Very common
Family Phocidae (earless seals)						
Harbor seal	(Cook Inlet/Shelikof Strait	-; N	27,386 (n/a; 25,651, 2011)	770	234	Occasional

¹Endangered Species Act (ESA) status: Endangered (E), Threatened (T)/MMPA status: Depleted (D). A dash (-) indicates that the species is not listed under the ESA or designated as depleted under the MMPA. Under the MMPA, a strategic stock is one for which the level of direct human-caused mortality exceeds PBR or which is determined to be declining and likely to be listed under the ESA within the foreseeable future. Any species or stock listed under the ESA is automatically designated under the MMPA as depleted and as a strategic stock.

²CV is coefficient of variation; N_{\min} is the minimum estimate of stock abundance. In some cases, CV is not applicable. For certain stocks of pinnipeds, abundance estimates are based upon observations of animals (often pups) ashore multiplied by some correction factor derived from knowledge of the species' (or similar species') life history to arrive at a best abundance estimate; therefore, there is no associated CV. In these cases, the minimum abundance may represent actual counts of all animals ashore.

³Potential biological removal, defined by the MMPA as the maximum number of animals, not including natural mortalities, that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population size (OSP).

⁴These values, found in NMFS's SARs, represent annual levels of human-caused mortality plus serious injury from all sources combined (e.g., commercial fisheries, ship strike). Annual M/SI often cannot be determined precisely and is in some cases presented as a minimum value or range. A CV associated with estimated mortality due to commercial fisheries is presented in some cases.

⁵The newly defined DPSs do not currently align with the stocks defined under the MMPA. On September 8, 2016, NMFS published a final decision which changed the status of humpback whales under the ESA (81 FR 62259). The decision recognized the existence of 14 DPSs based on distinct breeding areas in tropical and temperate waters. Five of the 14 DPSs were classified under the ESA (4 endangered and 1 threatened), while the other 9 DPSs were delisted. Humpback whales found in the Shumagin Islands are predominantly members of the Hawaii DPS, which are not listed under the ESA. However, based on a comprehensive photo-identification study, members of both the Western North Pacific DPS (ESA-listed as endangered) and Mexico DPS (ESA-listed as threatened) are known to occur in the Gulf of Alaska and Aleutian Islands.

Potential Effects of Specified Activities on Marine Mammals and their Habitat

The effects of underwater noise from construction activities for the project have the potential to result in injury and behavioral harassment of marine mammals in the vicinity of the project area. The *Federal Register* notice for the proposed IHA (82 FR 31400; July 6, 2017; 31408-31409) included a discussion of the potential effects of anthropogenic noise on marine mammals. The main impact associated with the ADOT&PF project would be temporarily elevated sound levels and the associated direct effects on marine mammals. The project would not result in permanent impacts to habitats used directly by marine mammals but may have

potential short-term impacts to food sources such as forage fish, and minor impacts to the immediate substrate resulting in a temporary, localized increase in turbidity. These potential effects are discussed in detail in the *Federal Register* notice for the proposed IHA (82 FR 31400; July 6, 2017; 31410-31414), therefore that information is not repeated here; please refer to that Federal Register notice for that information.

Estimated Take

This section provides an estimate of the number of incidental takes authorized through the IHA, which informed both NMFS' consideration of whether the number of takes is “small” and the negligible impact determination.

Harassment is the only means of take expected to result from these activities. Except with respect to certain activities not pertinent here, the MMPA defines "harassment" as any act of pursuit, torment, or annoyance which (i) has the potential to injure a marine mammal or marine mammal stock in the wild (Level A harassment); or (ii) has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering (Level B harassment). Level A and Level B harassment is expected to occur and is authorized in the numbers identified below.

Take has been authorized by Level B harassment in the form of behavioral disturbance for harbor porpoise, Dall's porpoise, killer whale, humpback whale, fin whale, gray whale, minke whale, Steller sea lion, and harbor seal near the project area that may result from impact and vibratory pile driving activities. Level A harassment in the form of PTS resulting from impact driving has also been authorized for small numbers of harbor porpoise, humpback whale, and harbor seal.

Take estimates are generally based on average marine mammal density in the project area multiplied by the area size of ensonified zones within which received noise levels exceed certain thresholds (*i.e.*, Level A and/or Level B harassment) from specific activities, then multiplied by the total number of days such activities would occur. If density information is not available, local observational data were used instead.

In order to estimate the potential incidents of take that may occur incidental to the specified activity, we must first estimate the extent of the sound field that may be produced by the activity and then consider the sound field in combination with information about marine mammal density or abundance in the project area. We first provide information on applicable sound thresholds for determining effects to marine mammals before describing the information used in estimating the sound fields, the available marine mammal density or abundance information, and the method of estimating potential incidents of take.

Sound Thresholds

We use the following generic sound exposure thresholds (Table 4) to determine when an activity that produces sound might result in impacts to a marine mammal such that a take by behavioral harassment (Level B) might occur.

Table 4. Underwater Level B Threshold Decibel Levels for Marine Mammals.

Criterion	Criterion Definition	Threshold¹
Level B harassment	Behavioral disruption for impulse noise (<i>e.g.</i> , impact pile driving)	160 dB RMS
Level B harassment	Behavioral disruption for non-pulse noise (<i>e.g.</i> , vibratory pile driving, drilling)	120 dB RMS

¹All decibel levels referenced to 1 micropascal (re: 1 μ Pa). Note all thresholds are based off root mean square (RMS) levels

We use NMFS' acoustic criteria (NMFS 2016a, 81 FR 51694; August 4, 2016), which establishes sound exposure thresholds to determine when an activity that produces sound might result in impacts to a marine mammal such that a take by auditory injury, *i.e.*, PTS, (Level A harassment) might occur. The specific methodology is presented in Appendix D of the Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (Guidance), available at <http://www.nmfs.noaa.gov/pr/acoustics/guidelines.htm> and the accompanying User Spreadsheet. The Guidance provides updated PTS onset thresholds using the cumulative SEL (SEL_{cum}) metric, which incorporates marine mammal auditory weighting functions, to identify the received levels, or acoustic thresholds, at which individual marine mammals are predicted to experience changes in their hearing sensitivity for acute, incidental exposure to all underwater anthropogenic sound sources. The Guidance (Appendix D) and its companion User Spreadsheet provide alternative methodology for incorporating these more complex thresholds and associated weighting functions.

The User Spreadsheet accounts for effective hearing ranges using Weighting Factor Adjustments (WFAs), and ADOT&PF's application uses the recommended values for vibratory and impact driving therein. The acoustic thresholds are presented using dual metrics of SEL_{cum} and peak sound level (PK) as shown in Table 5. In the case of the dual metric acoustic thresholds (L_{pk} and L_E) for impulsive sound, the larger of the two isopleths for calculating PTS onset is used. The method uses estimates of sound exposure level and duration of the activity to calculate the threshold distances at which a marine mammal exposed to those values would experience PTS. Differences in hearing abilities among marine mammals are accounted for by use of weighting factor adjustments for the five functional hearing groups (NMFS 2016). Note that for

all planned pile driving activities at Sand Point, the User Spreadsheet indicated that the Level A isopleths generated using the SEL_{cum} were the largest.

Table 5. Summary of PTS onset acoustic thresholds.

	PTS Onset Acoustic Thresholds¹ (Received Level)	
Hearing Group	Impulsive	Non-impulsive
Low-Frequency (LF) Cetaceans	<i>Cell 1</i> Lpk,flat: 219 dB LE,LF,24h: 183 dB	<i>Cell 2</i> LE,LF,24h: 199 dB
Mid-Frequency (MF) Cetaceans	<i>Cell 3</i> Lpk,flat: 230 dB LE,MF,24h: 185 dB	<i>Cell 4</i> LE,MF,24h: 198 dB
High-Frequency (HF) Cetaceans	<i>Cell 5</i> Lpk,flat: 202 dB LE,HF,24h: 155 dB	<i>Cell 6</i> LE,HF,24h: 173 dB
Phocid Pinnipeds (PW) (Underwater)	<i>Cell 7</i> Lpk,flat: 218 dB LE,PW,24h: 185 dB	<i>Cell 8</i> LE,PW,24h: 201 dB
Otariid Pinnipeds (OW) (Underwater)	<i>Cell 9</i> Lpk,flat: 232 dB LE,OW,24h: 203 dB	<i>Cell 10</i> LE,OW,24h: 219 dB

¹Dual metric acoustic thresholds for impulsive sounds: Use whichever results in the largest isopleth for calculating PTS onset. If a non-impulsive sound has the potential of exceeding the peak sound pressure level thresholds associated with impulsive sounds, these thresholds should also be considered. Note: Peak sound pressure (L_{pk}) has a reference value of 1 μPa , and cumulative sound exposure level (L_E) has a reference value of 1 $\mu\text{Pa}^2\text{s}$. In this Table, thresholds are abbreviated to reflect American National Standards Institute standards (ANSI 2013). However, peak sound pressure is defined by ANSI as incorporating frequency weighting, which is not the intent for this Technical Guidance. Hence, the subscript “flat” is being included to indicate peak sound pressure should be flat weighted or unweighted within the generalized hearing range. The subscript associated with cumulative sound exposure level thresholds indicates the designated marine mammal auditory weighting function (LF, MF, and HF cetaceans, and PW and OW pinnipeds) and that the recommended accumulation period is 24 hours. The cumulative sound exposure level thresholds could be exceeded in a multitude of ways (*i.e.*, varying exposure levels and durations, duty cycle). When possible, it is valuable for action proponents to indicate the conditions under which these acoustic thresholds will be exceeded.

Distance to Sound Thresholds

The sound field in the project area is the existing background noise plus additional construction noise from the proposed project. Marine mammals are expected to be affected via sound generated by the primary components of the project (*i.e.*, impact pile driving, vibratory pile driving, and vibratory pile removal). Vibratory hammers produce constant sound when operating, and produce vibrations that liquefy the sediment surrounding the pile, allowing it to penetrate to the required seating depth. An impact hammer would then generally be used to place the pile at its intended depth. The actual durations of each installation method vary depending on the type and size of the pile. An impact hammer is a steel device that works like a piston, producing a series of independent strikes to drive the pile. Impact hammering typically generates the loudest noise associated with pile installation. Factors that could potentially minimize the potential impacts of pile installation associated with the project include:

- The relatively shallow waters in the project area (Taylor *et al.*, 2008);
- Land forms around Sand Point that would block the noise from spreading; and
- Vessel traffic and other commercial and industrial activities in the project area that contribute to elevated background noise levels.

Sound would likely dissipate relatively rapidly in the shallow waters over soft seafloors in the project area. Additionally, portions of Popof Island and Unga Island would block much of the noise from propagating to its full extent through the marine environment.

In order to calculate distances to the Level A and Level B sound thresholds for piles of various sizes being used in this project, NMFS used acoustic monitoring data from other locations. Note that piles of differing sizes have different sound source levels.

Empirical data from recent ADOT&PF sound source verification (SSV) studies at Kake, Ketchikan, and Auke Bay, were used to estimate sound source levels (SSLs) for vibratory and impact installation of 30-inch steel pipe piles (MacGillivray *et al.*, 2016, Warner and Austin 2016b, Denes *et al.*, 2016a, respectively). Construction sites in Alaska were generally assumed to best represent the environmental conditions found in Sand Point and represent the nearest available source level data for 30-inch steel piles. Similarities among the sites include island chains and groups of islands adjacent to continental landmasses; deeply incised marine channels and fjords; local water depths of 20–40 meters; Gulf of Alaska marine water influences; and numerous freshwater inputs. However, the use of data from Alaska sites was not appropriate in all instances. Details are described below.

To derive source levels for vibratory driving of 30-in piles, NMFS used summary data from Auke Bay and Ketchikan as described in a comprehensive summary report by Denes *et al.*, (2016b). During the two studies, three 30-inch steel piles were installed at each location via both impact and vibratory driving. For each pile, the mean recorded SPL in dB re 1 μ Pa was reported for the locations monitoring hydrophones (Denes *et al.*, 2016; Warner and Austin 2016b). The vibratory data were then derived to a 10-meter standard distance. The average of the mean source levels from both Auke Bay and Ketchikan locations was then calculated for each measurement (rms and peak SPL, as well as sound exposure level [SEL]) (Denes *et al.*, 2016b). ADOT&PF also considered data from a study in Kake (MacGillivray *et al.*, 2016). However, conditions at Kake include an organic mud substrate which would likely absorb sound and decrease source level values for vibratory driving. NMFS believes that these conditions resulted in anomalous source level measurements for vibratory pile driving that would not be expected at locations with dissimilar substrates. NMFS will continue to evaluate use of these data on a case-

specific basis, however, for these reasons vibratory data from that study was not included in this analysis. Results are shown in Table 6.

For vibratory driving of 24-inch steel dolphin and fender piles, data from three projects (two projects in Washington and one in California) were reviewed. The Washington marine projects at the Washington State Ferries Friday Harbor Terminal (WSDOT, 2010) and Naval Base Kitsap, Bangor waterfront (Navy 2012), only measured one pile each, but reported similar sound levels of 162 dB RMS and 159 dB RMS (range 157 dB to 160 dB), respectively. Because only two piles were measured in Washington, the California project was also included in the analysis. The California project was located in a coastal bay and reported a “typical” value of 160 dB RMS with a range 158 to 178 dB RMS for two piles where vibratory levels were measured. Caltrans summarized the project’s RMS level as 170 dB RMS, although most levels observed were nominally 160 dB. Although the data set is limited to these projects, close agreement of the levels (average project values from 159 to 162 dB at 10 meters) resulted in NMFS selecting a source level of 161 dB RMS. Note that a fourth project at NBK, Bangor drove 16-inch hollow steel piles, with measured levels similar to those for the 24-inch piles. Therefore, NMFS elected to use the same 161 dB RMS as a source level for vibratory driving of 18-inch steel piles. NMFS believes it appropriate to use source levels from the next largest pile size when data are lacking for specific pile sizes, as is the case with the 18-inch piles under consideration.

ADOT&PF suggested a source level of 142 dB RMS for vibratory driving of steel H-piles. However, NMFS found this data to be inconsistent with other reported values and opted to use a value of 150 dB which was derived from summary data pertaining to vibratory driving of 12-inch H piles (Caltrans 2015).

In the application, ADOT&PF derived source levels for impact driving of 30-inch steel piles by averaging the individual mean values associated with impact driving of the same size and type from Auke Bay, Kake, and Ketchikan (Denes *et al.*, 2016a; MacGillivray *et al.*, 2016; Warner and Austin 2016b; Denes *et al.*, 2016b). Impact driving values at Kake did not seem to be influenced by substrate conditions in the way vibratory driving measurements are believed to have been and, therefore, Kake data was included. The average of the mean source levels from these three sites was then calculated for each metric (rms, SEL, and peak). Results are shown in Table 6.

For the 24-inch impact pile driving, NMFS used data from a Navy (2015) study of proxy sound source values for use at Puget Sound military installations. The Navy study recommended a value of 193 dB RMS which was derived from data generated by impact driving of 24-inch steel piles at the Bainbridge Island Ferry Terminal Preservation Project and the Friday Harbor Restoration Ferry Terminal Project. NMFS found this estimated source level to be appropriate.

Table 6. Estimates of mean underwater sound levels (decibels) generated during vibratory and impact pile installation and vibratory pile removal.

Method and Pile Type	Sound Level at 10 meters			Literature Source
Vibratory Hammer	dB re 1 μPa rms			
30-inch steel piles	165.6			Derived from Denes <i>et al.</i> 2016a (Auke); Warner and Austin 2016b (Ketchikan)
24-inch steel piles	161			WSDOT 2010; Caltrans 2012; Navy 2012
18-inch steel piles	161			WSDOT 2010; Caltrans 2012; Navy 2012
Steel H-piles	150			Caltrans 2015
Impact Hammer	dB rms	dB SEL	dB peak	
30-inch steel piles	193.6	179.3	207.1	Derived from Denes <i>et al.</i> 2016a; Warner and Austin 2016b, MacGillivray <i>et al.</i> , 2016
24-inch steel piles	193	181	210	Navy 2015

The formula below is used to calculate underwater sound propagation. Transmission loss (TL) is the decrease in acoustic intensity as an acoustic pressure wave propagates out from a source. TL parameters vary with frequency, temperature, sea conditions, current, source and receiver depth, water depth, water chemistry, and bottom composition and topography. The general formula for underwater TL is:

$$TL = B * \log_{10} (R_1/R_2)$$

Where:

TL = transmission loss in dB

B = transmission loss coefficient; for practical spreading equals 15

R_1 = the distance of the modeled SPL from the driven pile, and

R_2 = the distance from the driven pile of the initial measurement.

NMFS typically recommends a default practical spreading loss of 15 dB per tenfold increase in distance. ADOT&PF analyzed the available underwater acoustic data utilizing the practical spreading loss model.

Pulse duration from the SSV studies described above are unknown. All necessary parameters were available for the SEL_{cum} (cumulative Single Strike Equivalent) method for calculating isopleths. Therefore, this method was selected. To account for potential variations in daily productivity during impact installation, isopleths were calculated for different numbers of piles that could be installed each day (Table 7). Should the contractor expect to install fewer piles in a day than the maximum anticipated, a smaller Level A shutdown zone would be employed to monitor take.

To derive Level A harassment isopleths associated with the impact driving of 30-inch piles, ADOT&PF utilized a single strike SEL of 179.3 dB and assumed 1000 strikes per pile for

1 to 4 piles per day. For 24-inch dolphin piles, ADOT&PF used a single strike SEL of 181 dB and assumed 400 strikes at a rate of 1 or 2 piles per day. For 24-inch fender piles, ADOT&PF used the same single strike SEL of 181 dB and assumed 120 strikes per pile and 1 to 4 pile installations per day. To calculate Level A harassment isopleths associated with the vibratory driving of 30-inch piles, ADOT&PF utilized a source level (RMS SPL) of 165.6 dB and assumed 3 hours of driving per day. For 24-inch dolphin and fender piles, ADOT&PF used a source level of 161 dB and assumed up to 2 hours of driving per day. For installation and/or removal of piles less than 24-inches in diameter, ADOT&PF assumed use of 18-inch piles and used the same source level of 161 dB for up to 3 hours per day. If H-piles are used, a source level of 150 dB was utilized. Practical spreading was used in all instances. Results are shown in Table 7. Isopleths for Level B harassment associated with impact (160 dB) and vibratory harassment (120 dB) were also calculated and are included in Table 7.

Table 7. Pile installation and removal activities and calculated distances to Level A and Level B harassment isopleths.¹

Activity	Estimated Duration			Level A Harassment Zone (meters) (based on new Technical Guidance)					Level B Harassment Zone (meters) ²
	Hours per day	Days of effort		Cetaceans			Pinnipeds		Cetaceans and Pinnipeds (120 dB)
				LF	MF	HF	PW	OW	
Vibratory Installation 30"	3	13		28.8	2.6	42.6	17.5	1.2	10, 970 (10,964)
Vibratory Installation 24" Dolphin	2	2		6.8	0.6	10.1	4.2	0.3	5,420 (5,412)
Vibratory Installation 24" Fender	2	2		10.8	1	16	6.6	0.5	
Vibratory Installation and/or removal <24" (18")	3	15		14.2	1.3	21	8.6	0.6	
Vibratory Installation and/or removal < 24" (H-piles)	3	15		2.6	0.2	3.9	1.6	0.1	1,000
Activity	Piles per day	Strikes per pile	Days of effort	Cetaceans			Pinnipeds		Cetaceans and Pinnipeds (160 dB)
				LF	MF	HF	PW	OW	

Impact Installation 30"	4	1,000	13	1,426	51	1,699	763	56	1,740 (1,738)
	3		18	1,177	42	1,402	630	46	
	2		26	898	32	1,070	481	35	
	1		52	566	20	674	303	22	
Impact Installation 24" Dolphin	2	400	2	633	23	754	339	25	1,590 (1,585)
	1		3	399	14	475	213	16	
Impact Installation 24" Fender	4	120	2	450	16	537	241	18	
	3		3	372	13	443	199	15	
	2		4	284	10	338	152	11	
	1		8	179	6	213	96	7	

¹To account for potential variations in daily productivity during impact installation, isopleths were calculated for different numbers of piles that could be installed each day (Therefore, should the contractor expect to install fewer piles in a day than the maximum anticipated, a smaller Level A shutdown zone would be required to avoid take.)

²Mitigation zones have been rounded up to the nearest 10 m. Number in parenthesis is distance used in calculation of take estimates.

Note that the actual area ensonified by pile driving activities is significantly constrained by local topography relative to the total threshold radius. The actual ensonified area was determined using a straight line-of-sight projection from the anticipated pile driving locations. The corresponding areas of the Level A and Level B ensonified zones for impact driving and vibratory installation/removal are shown in Table 8.

Table 8. Calculated areas (km²) ensonified within Level A and Level B harassment thresholds in excess of 100-meter distance during pile installation and removal activities.

Activity	Estimated Duration		Level A Harassment Zone (km ²) (based on new Technical Guidance)					Level B Harassment Zone (km ²) (based on Practical Spreading Loss Model)
			Cetaceans			Pinnipeds		Cetaceans and Pinnipeds (120 dB)
	Hours per day	Days of effort	LF	MF	HF	PW	OW	
Vibratory Installation 30”	3	13	NA	NA	NA	NA	NA	24.42
Vibratory Installation 24” Dolphin	2	2	NA	NA	NA	NA	NA	17.19
Vibratory Installation 24” Fender	2	2	NA	NA	NA	NA	NA	
Vibratory Installation and/or removal <24” (18”)	3	15	NA	NA	NA	NA	NA	

Vibratory Installation and/or removal < 24” (H-piles)	3		15	NA	NA	NA	NA	NA	1.47
Activity	Piles per day	Strikes per pile	Days of effort	Cetaceans			Pinnipeds		Cetaceans and Pinnipeds (160 dB)
				LF	MF	HF	PW	OW	
Impact Installation 30”	4	1,000	13	2.84	NA	3.91	0.91	NA	4.08
	3		18	1.98	NA	2.75	0.66	NA	
	2		26	1.21	NA	1.66	0.41	NA	
	1		52	0.55	NA	0.74	0.18	NA	
Impact Installation 24” Dolphin	2	400	2	0.67	NA	0.89	0.22	NA	3.45
	1		3	0.29	NA	0.40	0.09	NA	
Impact Installation 24” Fender	4	120	2	0.36	NA	0.50	0.11	NA	
	3		3	0.26	NA	0.35	0.08	NA	
	2		4	0.16	NA	0.22	0.04	NA	
	1		8	0.06	NA	0.09	0.02	NA	

Potential exposures to impact and vibratory pile driving noise for each threshold were estimated using local marine mammal density datasets where available and local observational data.

Dall's Porpoise

There currently is no information on the presence or abundance of Dall's porpoises in the Shumagin Islands. No sightings of Dall's porpoises have been documented in Humboldt Harbor and they are not expected to occur there (HDR 2017). However, individuals may occur in the deeper waters north of Popof Island or in Popof Strait, west of the Sand Point Airport. These porpoises have been sighted infrequently on research cruises heading in and out of Sand Point in deeper local waters (Speckman, Pers. Comm.). Dall's porpoise are non-migratory; therefore, exposure estimates are not dependent on season. Exposure of Dall's porpoise to noise from impact hammer pile installation is unlikely, as they are not expected to occur within the 1,738 meter Level B harassment zone. Similarly, we do not anticipate Dall's porpoise would be exposed to noise in excess of the Level A harassment threshold, which would be located at a maximum distance of 1,699 meters. It is possible, however, that they would occur in the larger

Level B zone associated with vibratory driving of 30-inch (up to 10,970 meters) and 24-inch piles (up to 5,420 meters). Over the course of 40 days in which vibratory driving will be employed, NMFS conservatively anticipates no more than one observation of a Dall's porpoise pod in these Level B vibratory harassment zones. With an average pod size of 3.7 (Wade *et al.*, 2003), NMFS has authorized take of four Dall's porpoises during the pile driving activities. No Level A take is authorized for Dall's porpoises.

Harbor Porpoise

There are no reports of harbor porpoises or harbor porpoise densities in the Shumagin Islands. It is reasonable to assume that they would occur in the vicinity of Popof and Unga Islands given that they are common in the Gulf of Alaska and their preferred habitat consists of coastal waters of 100 meters or less (Hobbs and Waite 2010). Based on the known range of the Gulf of Alaska stock, only six sightings of singles or pairs during 110 days of monitoring of the Kodiak Ferry Terminal and Dock Improvements project, and occasional sightings during monitoring of projects at other locations on Kodiak Island, it is assumed that harbor porpoises could be present on an intermittent basis.

Harbor porpoises are non-migratory; therefore, exposure estimates are not dependent on season. NMFS conservatively estimates harbor porpoise could be exposed to construction-related in-water noise on two out of every three construction days. Harbor porpoises in this area have a mean group size of 1.82 (Watwood and Buonantony, 2012). Therefore, NMFS authorizes the take of 49 harbor porpoises as shown below.

Sighting every 0.667 days * 40 days of exposure * 1.82 group size = 49 (48.55) rounded up).

During impact installation of piles, the Level A harassment isopleth for harbor porpoises extends up to 1,699 meters when a maximum of four 30-inch piles are installed on the same day. Given that harbor porpoises prefer near-shore waters, we anticipate that it is possible for up to one-third of the harbor porpoise sighting to occur in a Level A harassment zone. Therefore, of the 49 authorized takes, 16 will occur within a Level A harassment isopleth and 33 will occur within a Level B harassment isopleth.

Killer Whale

Line transect surveys conducted in the Shumagin Islands between 2001 and 2003 did not record any resident killer whales, but did record a relatively high abundance of transient killer whales (Zerbini *et al.*, 2007). The same study estimated a density of approximately 0.002 killer whales per square kilometer (km^2) in the Shumagin Islands (Zerbini *et al.*, 2007). The population trend of the transient stock of killer whales in Alaska has remained stable since the 1980s (Muto *et al.*, 2016a). Anecdotal observations indicate that killer whales are not often seen in the vicinity of Sand Point, including Popof Strait (HDR 2017). Killer whales are expected to be uncommon in the project area and are not expected to enter into Humboldt Harbor. However, NMFS used the density estimate of 0.002 per km^2 to determine the number of killer whales potentially observed within the project area. Given the low probability of occurrence within the project area, using the available density estimates as an indication of exposure is a conservative approach to estimate potential killer whale exposure to pile driving noise. Vibratory installation of 30-inch piles will occur on 13 days while vibratory installation of 24-inch dolphin piles, 24-inch fender piles, and temporary 18-inch or h-piles will occur on a total of 19 days. NMFS assumed that 18-inch piles would be installed instead of h-piles and that 18-inch piles have the same source level and isopleth as 24-in piles. NMFS also added a 25 percent contingency factor

to account for unanticipated delays. Therefore, there would be up to 16.25 days of vibratory installation of 30-inch piles and 23.75 days of 24-inch piles. At a density of 0.002 whales/km², NMFS anticipates approximately 0.79 killer whales (*i.e.*, 0.002 whales/km² * 24.42 km² 30-inch vibratory harassment zone * 16.25 days) would be exposed to Level B harassment associated with 30-inch vibratory driving while 0.82 killer whales (*i.e.*, 0.002 whales/km² * 17.19 km² 24-inch vibratory harassment zone * 23.75 days) would be exposed to Level B harassment from 24-inch vibratory driving over 40 days. Over the 40 day construction period, 2 killer whales (1.61 rounded up) would be exposed to Level B harassment.

However, killer whales generally travel in pods, or groups of individuals. The average pod size for transient killer whales is four individuals (Zerbini *et al.*, 2007) and 5-50 for resident killer whales (Heise *et al.*, 2003). A monitoring report associated with issuance of an IHA for Kodiak Ferry Terminal and Dock Improvements Project recorded four killer whale pod observations during 110 days of monitoring with the largest pod size consisting of seven individuals. NMFS will, therefore, assume that there will be sightings of two pods with an average group size of seven over the course of the 40-day construction period resulting in 14 authorized Level B killer whale takes. These killer whales would likely be transients, but could also be residents, so take is authorized for both stocks. No Level A take is authorized for killer whales since the injury zone is smaller than the 100 meter shutdown zone.

Humpback Whale

Surveys from 2001 to 2004 estimated humpback whale abundance in the Shumagin Islands at between 410 and 593 individuals during the summer feeding season (July–August; Witteveen *et al.*, 2004; Zerbini *et al.*, 2006). Annual vessel-based, photo-identification surveys in the Shumagin Islands from 1999 to 2015 identified 654 unique individual humpback whales

between June and September (Witteveen and Wynne 2016). Humpback whale abundance in the Shumagin Islands increased 6 percent per year between 1987 and 2003 (Zerbini *et al.*, 2006). Between 2001 and 2003, summer line transect surveys in the Shumagin Islands estimated the humpback whale density at 0.02 whales per km² (Zerbini *et al.*, 2006). Given an approximate population increase of 6 percent each year since the early 2000's (Muto *et al.*, 2016b), we conservatively estimate the current density of humpback whales as about 0.04 whale per km² (0.02 whale/km² * (6% increase/year * 13 years)).

Exposure of humpback whales to Level A and Level B harassment noise levels is possible in August and, to a lesser extent, in September. Exposure is unlikely between October and December because humpback whale abundance is low during late fall and winter. Humpback whales, when present, are unlikely to enter Humboldt Harbor or approach the City of Sand Point, but would instead transit through Popof Strait or feed in the deeper waters off the airport, between Popof and Unga islands (HDR 2017). Harassment from pile installation is possible in waters between Popof and Unga islands, including Popof Strait. Because we do not know exactly when construction might occur, we will use the updated summer density estimate (and our only density estimate) of 0.04 whales/km² to estimate exposure.

At a density of 0.04 whales/km², NMFS anticipates approximately 15.87 humpback whales (*i.e.*, 0.04 whales/km² * 24.42 km² 30-inch vibratory harassment zone * 16.25 days) would be exposed to harassment on days when 30-inch vibratory driving would occur. Additionally, 16.33 whales (*i.e.*, 0.04 whales/km² * 17.19 km² 24-inch vibratory harassment zone * 23.75 days) would be exposed to harassment on days in which 24-inch piles are driven for a total of 32 (32.2 rounded down) whale takes over 40 days.

A subset of the 32 humpback whales potentially exposed to harassment noise levels may enter the Level A harassment zone, which extends 1,426 meters assuming an optimal productivity of driving four 30-inch piles per day; 633 meters when driving two 24-inch dolphins; and 450 meters when driving four 24-inch fenders. NMFS has again added a 25 percent contingency and will assume 16.25 days of 30-inch impact pile driving, 2.5 days of 24-inch dolphin installation and 2.5 days of 24-inch fender installation. Note that when estimating Level A take, NMFS conservatively defaulted to the Level A isopleth and corresponding area associated with maximum number of piles that can be driven each day for each pile size. We anticipate approximately 1.84 humpback whales (*e.g.*, $0.04 \text{ whales/km}^2 * 2.84 \text{ km}^2$ Level A harassment zone * 16.25 days) would be exposed to Level A harassment during 30-inch impact pile driving; approximately 0.07 humpback whales (*e.g.*, $0.04 \text{ whales/km}^2 * 0.67 \text{ km}^2$ Level A harassment zone * 2.5 days) would be exposed to Level A harassment during 24-inch dolphin installation; and approximately 0.04 humpback whales (*e.g.*, $0.04 \text{ whales/km}^2 * 0.36 \text{ km}^2$ Level A harassment zone * 2.5 days) would be exposed to Level A harassment during 24-inch fender installation. Therefore, a total of 2 (1.95 rounded up) humpback whales could be exposed to Level A harassment. Therefore, NMFS is authorizing 30 Level B and 2 Level A humpback whale takes.

Humpback whales found in the Shumagin Islands are predominantly members of the Hawaii DPS, which are not listed under the ESA. However, based on a comprehensive photo-identification study, members of both the Western North Pacific DPS (ESA-listed as endangered) and Mexico DPS (ESA-listed as threatened) are known to occur in the Gulf of Alaska and Aleutian Islands. Members of different DPSs are known to intermix on feeding grounds; therefore, all waters off the coast of Alaska should be considered to have ESA-listed

humpback whales. According to Wade *et al.* (2016), the probability of encountering a humpback whale from the Western North Pacific DPS in the Gulf of Alaska is 0.5 percent (CV [coefficient of variation]=0.001). The probability of encountering a humpback whale from the Mexico DPS is 10.5 percent (CV=0.16). The remaining 89 percent (CV=0.01) of individuals in the Gulf of Alaska are likely members of the Hawaii DPS (Wade *et al.*, 2016). Therefore, it is estimated that 28 humpback whales would be from the Hawaii DPS, three humpback whales would be from the threatened Mexico DPS, and 1 humpback whale would be from the endangered Western North Pacific DPS. Given the small number of anticipated Level A takes, NMFS will assume that both authorized Level A takes represent members of the Hawaii DPS.

Fin Whale

Vessel-based line-transect surveys of coastal waters between Resurrection Bay and the central Aleutian Islands were completed in July and August from 2001 to 2003 (Zerbini *et al.*, 2006). Large concentrations of fin whales were found in the Semidi Islands, located midway between the Shumagin Islands and Kodiak Island just south of the Alaska Peninsula. The abundance of fin whales in the Shumagin Islands ranged from a low estimate of 604 in 2003 to a high estimate of 1,113 in 2002. The estimated density of fin whales in the Shumagin Islands was 0.007 whales per km² and this is the density estimate assumed for the project area. Fin whale density in the Shumagin Islands at other times of the year is unknown, and they are uncommon in Humboldt Harbor or Popof Strait (HDR 2017). At a density of 0.007 whales/km², NMFS anticipates approximately 2.77 fin whales (*i.e.*, 0.007 whales/km² * 24.42 km² 30-inch vibratory harassment zone * 16.25 days) would be exposed to Level B harassment on days when 30-inch vibratory driving would occur. Additionally, 2.86 whales (*i.e.*, 0.007 whales/km² * 17.19 km² 24-inch vibratory harassment zone * 23.75 days) would be exposed to Level B harassment on

days in which 24-inch piles are driven for a total of 6 (5.63 rounded up) Level B takes of fin whales over 40 days. Therefore, NMFS is authorizing 6 Level B fin whale takes.

Fin whales are typically found in deep, offshore waters so no Level A take is authorized for this species.

Minke Whale

There are no population estimates for minke whales in Alaska; however, nearshore aerial surveys of the western Gulf of Alaska took place between 2001 and 2003. These surveys estimated the minke whale population in that area at approximately 1,233 individuals (Zerbini *et al.*, 2006). Conservatively, minke whales could be exposed to construction-related noise levels year round. Surveys indicate a density of 0.001 minke whales per km² south of the Alaska Peninsula (including the Shumagin Islands). At a density of 0.001 whales/km², NMFS anticipates approximately 0.40 minke whales (*i.e.*, 0.001 whales/km² * 24.42 km² 30-inch vibratory harassment zone * 16.25 days) would be exposed to Level B harassment on days when 30-inch vibratory driving would occur. Additionally, 0.41 whales (*i.e.*, 0.001 whales/km² * 17.19 km² 24-inch vibratory harassment zone * 23.75 days) would be exposed to Level B harassment on days in which 24-inch piles are driven for a total of 1 (0.81 rounded up) level B take of minke whales over 40 construction days. With a pod size of two or three (NMFS 2015), NMFS authorizes the take of three minke whales during the 40-day construction period. No Level A take is authorized due to low abundance near the project area.

Gray Whale

Gray whales could potentially migrate through the area between March through May and November through January. Gray whale presence near Sand Point and in Humboldt Harbor is rare and unlikely to occur during the construction period. As such, exposure of gray whales to

noise from impact hammer pile installation is unlikely, as they are not expected to occur within the 1,426 meter harassment zone. Harassment from vibratory pile installation is possible in the deeper water north of Popof Strait. Because there are no density estimates for the area and the rarity of gray whales within the project area, NMFS conservatively estimates that gray whales will not be observed more than one time during the construction period. Multiplying the one potential observation by the average pod size of 2.4 (Rugh *et al.*, 2005), NMFS authorizes the take of two gray whales by Level B harassment level over the course of the construction period. No Level A take is authorized for gray whales.

Steller Sea Lion

The number of unique individuals used to calculate take was based on information reported by the nearby seafood processing facility. It is estimated that about 12 unique individual sea lions likely occur in Humboldt Harbor each day during the pollock fishing seasons (HDR 2017). It is assumed that Steller sea lions may be present every day, and that take will include multiple harassments of the same individual(s) both within and among days. It is also assumed that 12 unique individual sea lions occur in Humboldt Harbor each day and could potentially be exposed to Level B harassment over 40 days of construction. Given that the project area is located within the aquatic zones (*i.e.*, designated critical habitat) of two designated major haulouts (Sea Lion Rocks and The Whaleback), sea lions could commonly enter into the Level B harassment zone outside of the Humboldt Harbor. As such, it is assumed that an additional 12 animals per day may occur in the Level B harassment zone outside of Humboldt Harbor.

Total exposures is calculated using the following equation:

$$24 \text{ sea lions per day} * 40 \text{ days of exposure} = 960 \text{ potential exposures}$$

Therefore, we authorize the Level B take of 960 Steller sea lions. No Level A take is anticipated as the Level A isopleths are smaller than the 100 meter shutdown zone.

Harbor Seal

Anecdotal observations indicate that harbor seals are uncommon in Humboldt Harbor proper (HDR 2017). However, they are expected to occur occasionally in the project area. The Kodiak Ferry Terminal and Dock Improvements Project on Kodiak Island recorded 13 single sightings of harbor seals during 110 days of monitoring. Although the harbor seal stock is different at Kodiak (South Kodiak stock) and the project sites are somewhat dissimilar, NMFS used this information to conservatively estimate that one harbor seal could be present near Sand Point on any given day. An aerial haulout survey in 2011 estimated that 15 harbor seals occupy the survey unit along the south coast of Popof Island (London *et al.*, 2015) and anecdotal observations indicate that harbor seals are known to occur intermittently near the airport (HDR 2017). NMFS conservatively estimates that one animal per day will be observed near the harbor while another animal will occur near the airport or elsewhere within an ensonified zone. Therefore, NMFS estimates that up to two harbor seals may be taken each day during the 40-day pile installation period for a total of 80 authorized takes.

During impact installation of 30-inch piles, the Level A harassment isopleth for harbor seals extends out to a maximum distance of 763 meters on days when four piles are driven; out to 339 meters when two 24-inch dolphins are installed on the same day; and out to 241 meters when four fenders are installed on a single day. Harbor seals often act curious toward on-shore activities and are known to approach humans, lifting their heads from the water to look around. Given that harbor seals are likely to be found in the near-shore environment, we are authorizing limited Level A take since the impact pile driving injury zones can extend well beyond the 100

meter shutdown zone. We anticipate that up to one-third of harbor seal takes would be by Level A harassment resulting in 27 authorized Level A and 53 authorized Level B takes of harbor seals.

Mitigation Measures

In order to issue an IHA under Section 101(a)(5)(D) of the MMPA, NMFS must set forth the permissible methods of taking pursuant to such activity, and other means of effecting the least practicable impact on such species or stock and its habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance, and on the availability of such species or stock for taking for certain subsistence uses. NMFS regulations require applicants for incidental take authorizations to include information about the availability and feasibility (economic and technological) of equipment, methods, and manner of conducting such activity or other means of effecting the least practicable adverse impact upon the affected species or stocks and their habitat (50 CFR 216.104(a)(11)).

In evaluating how mitigation may or may not be appropriate to ensure the least practicable adverse impact on species or stocks and their habitat, as well as subsistence uses where applicable, we carefully balance two primary factors: 1) the manner in which, and the degree to which, the successful implementation of the measure(s) is expected to reduce impacts to marine mammals, marine mammal species or stocks, and their habitat which considers the nature of the potential adverse impact being mitigated (likelihood, scope, range), as well as the likelihood that the measure will be effective if implemented; and the likelihood of effective implementation, and; 2) the practicability of the measures for applicant implementation, which may consider such things as cost, impact on operations, and, in the case of a military readiness

activity, personnel safety, practicality of implementation, and impact on the effectiveness of the military readiness activity.

In addition to the measures described later in this section, ADOT&PF will employ the following standard mitigation measures:

(a) Conduct briefings between construction supervisors and crews, and marine mammal monitoring team, prior to the start of all pile driving activity, and when new personnel join the work, in order to explain responsibilities, communication procedures, marine mammal monitoring protocol, and operational procedures, and;

(b) For in-water heavy machinery work other than pile driving (*e.g.*, standard barges, tug boats), if a marine mammal comes within 10 m, operations shall cease and vessels shall reduce speed to the minimum level required to maintain steerage and safe working conditions. This type of work could include the following activities: (1) movement of the barge to the pile location; or (2) positioning of the pile on the substrate via a crane (*i.e.*, stabbing the pile).

(c) Work will only occur during daylight hours, when visual monitoring of marine mammals can be conducted.

The following measures would apply to ADOT&PFs mitigation requirements:

Establishment of Shutdown Zone—For all pile driving activities, ADOT&PF will establish a shutdown zone. The purpose of a shutdown zone is generally to define an area within which shutdown of activity would occur upon sighting of a marine mammal (or in anticipation of an animal entering the defined area). In this case, shutdown zones are intended to contain areas in which SPLs equal or exceed acoustic injury criteria for some authorized species, based on NMFS' new acoustic technical guidance published in the *Federal Register* on August 4, 2016 (81 FR 51693). The shutdown zones vary for specific species. A conservative shutdown zone of

100 meters will be monitored during all pile driving activities to prevent Level A exposure to most species. During vibratory installation of piles of all sizes and impact installation of 24-inch piles, piles under 24 inches, and H-piles, a 100-meter shutdown zone would prevent Level A take to marine mammals. A 100-meter shutdown zone would also be sufficient to prevent Level A take of mid-frequency cetaceans and otariid pinnipeds (*i.e.*, Steller sea lions) during impact installation of 30-inch and 24-inch piles. Note that Level A take is not authorized for the low-frequency species of fin whale, gray whale and minke whale, mid-frequency killer whale and high-frequency Dall's porpoise since estimated take numbers are low. In the unlikely occurrence that animals of these species are observed approaching their respective Level A zones, pile driving operations will shut down. If an animal for which take is authorized is unexpectedly sighted within the 100-meter shutdown zone during impact or vibratory driving, operations shall immediately cease. The animal will be counted as a Level B take assuming it is outside of the Level A take zone as delineated in Table 7.

Establishment of Level A Take Zone—ADOT&PF will establish Level A take zones which are areas beyond the shutdown zones where animals may be exposed to sound levels that could result in PTS. During impact installation of 30-inch and 24-inch piles, a 100-meter shutdown zone would not be sufficient to prevent Level A take of low-frequency cetaceans (*i.e.*, humpback whales), high-frequency cetaceans (*i.e.*, harbor porpoises), or phocid pinnipeds (*i.e.*, harbor seals). For this reason, Level A take for small numbers of humpback whales, harbor porpoises, and harbor seals is authorized.

To account for potential variations in daily productivity during impact installation, isopleths were calculated for different numbers of piles that could be installed each day. Therefore, should the contractor expect to install fewer piles in a day than the maximum

anticipated, a smaller Level A shutdown zone reflecting the number of piles driven would be required to avoid take. Furthermore, if the first pile is driven and no marine mammals have been observed within the radius of corresponding Level A zone, then the Level A radius for the next pile shall be decreased to next largest Level A radius. This pattern shall continue unless an animal is observed within the most recent shutdown zone radius, at which that specific shutdown radius shall remain in effect for the rest of the workday. Additionally, if piles of different sizes are installed in a single day, the size of the monitored Level A zone for all installed piles will default to the isopleth corresponding to the largest pile being driven that day. Level A zones will be rounded up to the nearest 10 m and are depicted in Table 9.

Table 9. Level A Zone Isopleths During Impact Driving.¹

Activity	Piles installed per day	Isopleths (m)				
		LF (Humpback whales)	MF	HF (Harbor porpoises)	PW (Harbor seals)	OW
Impact Installation 30"	4	1,430 (1,426)	60 (51)	1,700 (1,699)	770 (763)	60 (56)
	3	1,180 (1,177)	50 (42)	1,410 (1,402)	630 (630)	50 (46)
	2	900 (898)	40 (32)	1,070 (1,070)	490 (481)	40 (35)
	1	570 (566)	20 (20)	680 (674)	310 (303)	30 (22)
Impact Installation 24" Dolphin	2	640 (633)	30 (23)	760 (754)	340 (339)	30 (25)
	1	400 (399)	20 (14)	480 (475)	220 (213)	20 (16)
Impact Installation 24" Fender	4	450 (450)	20 (16)	540 (537)	250 (241)	20 (18)
	3	380 (372)	20 (20)	450 (443)	200 (199)	20 (15)
	2	290 (284)	10 (10)	340 (338)	160 (152)	20 (11)
	1	180 (179)	10 (6)	220 (213)	100 (96)	10 (7)

¹Mitigation zones have been rounded up to the nearest 10 m. Number in parenthesis is distance used in calculation of take estimates where applicable.

Establishment of Disturbance Zones—ADOT&PF will establish Level B disturbance zones or zones of influence (ZOI) which are areas where SPLs equal or exceed 160 dB rms for impact driving and 120 dB rms during vibratory driving. Disturbance zones provide utility for monitoring by establishing monitoring protocols for areas adjacent to the shutdown zones. Monitoring of disturbance zones enables observers to be aware of and communicate the presence of marine mammals in the project area and outside the shutdown zone and thus prepare for potential shutdowns of activity. The Level B zone isopleths will be rounded up to the nearest 10 m and are depicted in Table 10.

Table 10. Level B Zone Isopleths during Impact and Vibratory Driving.

Activity	Level B Harassment Zone (meters)
Vibratory Installation 30"	10,970
Vibratory Installation 24" Dolphin	5,420
Vibratory Installation 24" Fender	5,420
Vibratory Installation and/or removal < 24" (18" piles)	5,420
Vibratory Installation and/or removal < 24" (H-piles)	1,000
Impact Installation 30"	1,740
Impact Installation 24" Dolphin	1,590
Impact Installation 24" Fender	1,590

¹Mitigation zones have been rounded up to the nearest 10 m. Number in parenthesis is distance used in calculation of take estimates where applicable.

Soft Start—The use of a soft-start procedure is believed to provide additional protection to marine mammals by providing warning and/or giving marine mammals a chance to leave the area prior to the hammer operating at full capacity. For impact pile driving, contractors will be required to provide an initial set of strikes from the hammer at 40 percent energy, each strike

followed by no less than a 30-second waiting period. This procedure will be conducted a total of three times before impact pile driving begins. Soft Start is not required during vibratory pile driving and removal activities.

Pre-Activity Monitoring - Prior to the start of daily in-water construction activity, or whenever a break in pile driving of 30 minutes or longer occurs, the observer will observe the shutdown and monitoring zones for a period of 30 minutes. The shutdown zone will be cleared when a marine mammal has not been observed within zone for that 30-minute period. If a marine mammal is observed within the shutdown zone, a soft-start cannot proceed until the animal has left the zone or has not been observed for 30 minutes for medium and large-sized odontocetes and mysticetes and 15 minutes for small cetaceans and pinnipeds. If the Level B harassment zone has been observed for 30 minutes and non-permitted species are not present within the zone, soft start procedures can commence and work can continue even if visibility becomes impaired within the Level B zone. If the Level B zone is not visible while work continues, exposures will be recorded at the estimated exposure rate for each permitted species. If work ceases for more than 30 minutes, the pre-activity monitoring of both zones must recommence.

Based on our evaluation of the applicant's proposed measures, as well as other measures considered by NMFS, NMFS has determined that the planned mitigation measures provide the means effecting the least practicable adverse impact on the affected species or stocks and their habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance.

Monitoring and Reporting

In order to issue an IHA for an activity, Section 101(a)(5)(D) of the MMPA states that NMFS must set forth requirements pertaining to the monitoring and reporting of such taking.

The MMPA implementing regulations at 50 CFR 216.104 (a)(13) indicate that requests for authorizations must include the suggested means of accomplishing the necessary monitoring and reporting that will result in increased knowledge of the species and of the level of taking or impacts on populations of marine mammals that are expected to be present in the action area. Effective reporting is critical to compliance as well as ensuring that the most value is obtained from the required monitoring.

Monitoring and reporting requirements prescribed by NMFS should contribute to improved understanding of one or more of the following:

- Occurrence of marine mammal species or stocks in the action area (*e.g.*, presence, abundance, distribution, density).
- Nature, scope, or context of likely marine mammal exposure to potential stressors/impacts (individual or cumulative, acute or chronic), through better understanding of: (1) action or environment (*e.g.*, source characterization, propagation, ambient noise); (2) affected species (*e.g.*, life history, dive patterns); (3) co-occurrence of marine mammal species with the action; or (4) biological or behavioral context of exposure (*e.g.*, age, calving or feeding areas).
- Individual marine mammal responses (behavioral or physiological) to acoustic stressors (acute, chronic, or cumulative), other stressors, or cumulative impacts from multiple stressors.
- How anticipated responses to stressors impact either: (1) long-term fitness and survival of individual marine mammals; or (2) populations, species, or stocks.
- Effects on marine mammal habitat (*e.g.*, marine mammal prey species, acoustic habitat, or other important physical components of marine mammal habitat).
- Mitigation and monitoring effectiveness.

Visual Marine Mammal Observation

Monitoring will be conducted by qualified marine mammal observers (MMOs), who are trained biologists, with the following minimum qualifications:

- Independent observers (*i.e.*, not construction personnel) are required;
- At least one observer must have prior experience working as an observer;
- Other observers may substitute education (undergraduate degree in biological science or related field) or training for experience;
- Ability to conduct field observations and collect data according to assigned protocols;
- Experience or training in the field identification of marine mammals, including the identification of behaviors;
- Sufficient training, orientation, or experience with the construction operation to provide for personal safety during observations;
- Writing skills sufficient to prepare a report of observations including but not limited to the number and species of marine mammals observed; dates and times when in-water construction activities were conducted; dates and times when in-water construction activities were suspended to avoid potential incidental injury from construction sound of marine mammals observed within a defined shutdown zone; and marine mammal behavior;
- Ability to communicate orally, by radio or in person, with project personnel to provide real-time information on marine mammals observed in the area as necessary; and
- NMFS will require submission and approval of observer CVs.

In order to effectively monitor the pile driving monitoring zones, two MMOs will be positioned at the best practical vantage point(s). The monitoring position may vary based on pile

driving activities and the locations of the piles and driving equipment. The monitoring location(s) will be identified with the following characteristics: (1) Unobstructed view of pile being driven; (2) Unobstructed view of all water within the Level A (if applicable) and Level B harassment zones for pile being driven, although it is understood that monitoring may be impaired at longer distances; and (3) Safe distance from pile driving activities in the construction area. If necessary, observations may occur from two locations simultaneously. Potential observation locations include the existing City Dock, the airport, the fish processing facility, or the quarry hillside located south of the project site

Observers will be on site and actively observing the shutdown and disturbance zones during all pile driving and extraction activities. Observers will use their naked eye with the aid of binoculars, big-eye binoculars or spotting scope to search continuously for marine mammals during all pile driving and extraction activities.

The following additional measures apply to visual monitoring:

- If waters exceed a sea-state which restricts the observers' ability to make observations within 100 m of the pile driving activity (*e.g.*, excessive wind or fog), pile installation and removal will cease. Pile driving will not be initiated until the entire shutdown zone is visible;
- If a marine mammal authorized for Level A take is present within the Level A harassment zone, a Level A take would be recorded. If Level A take reaches the authorized limit, then pile installation would be stopped as these species approach the Level A harassment area to avoid additional take of these species;
- If a marine mammal authorized for Level B take is present in the Level B harassment zone, pile driving activities or soft-start may begin and a Level B take would be

recorded. Pile driving activities may occur when these species are in the Level B harassment zone, whether they entered the Level B zone from the Level A zone (if relevant), shutdown zone or from outside the project area. If Level B take reaches the authorized limit, then pile installation would be stopped as these species approach to avoid additional take of these species;

- If any marine mammal species for which take is not authorized or if a species for which authorization has been granted but the number of authorized takes has been met enters or approaches the ZOI all activities shall be shut down until the animal is seen leaving the ZOI or it has not been seen in the shutdown zone for 30 minutes for medium and large-sized odontocetes and mysticetes and 15 minutes for small cetaceans and pinnipeds;

- If any marine mammal species not authorized for take are encountered during activities and are likely to be exposed to Level B harassment, then ADOT&PF must stop pile driving activities and report observations to NMFS' Office of Protected Resources;

- When a marine mammal is observed, its location will be determined using a rangefinder to verify distance and a GPS or compass to verify heading;

- The MMOs will record any authorized cetacean or pinniped present in the relevant injury zone. The Level A zones are shown in Table 9;

- The MMOs will record any authorized cetacean or pinniped present in the relevant disturbance zone. The Level B zones are shown in Table 10;

- Ongoing in-water pile installation may be continued during periods when conditions such as high sea state, rain, glare, or other conditions prevent effective marine mammal monitoring of the entire Level B harassment zone. MMOs would continue to monitor

the visible portion of the Level B harassment zone throughout the duration of driving activities;
and

- At the end of the pile driving day, post-construction monitoring shall be conducted for 30 minutes beyond the cessation of pile driving.

Data Collection

Observers are required to use data forms approved by NMFS. Among other pieces of information, ADOT&PF will record detailed information about any implementation of shutdowns, including the distance of animals to the pile and description of specific actions that ensued and resulting behavior of the animal, if any. In addition, the ADOT&PF will attempt to distinguish between the number of individual animals taken and the number of incidents of take.

At a minimum, the following information will be collected on the sighting forms:

- Date and time that monitored activity begins or ends;
- Construction activities occurring during each observation period;
- Detailed information about any implementation of shutdowns, including the distance of animals to the pile and description of specific actions that ensued and resulting behavior of the animal, if any;
- Weather parameters (*e.g.*, percent cover, visibility);
- Water conditions (*e.g.*, sea state, tide state);
- Species, numbers, and, if possible, sex and age class of marine mammals;
- Description of any observable marine mammal behavior patterns, including bearing and direction of travel and distance from pile driving activity;
- Distance from pile driving activities to marine mammals and distance from the marine mammals to the observation point;

- Locations of all marine mammal observations; and
- Other human activity in the area.

Reporting

ADOT&PF will notify NMFS prior to the initiation of the pile driving activities and will provide NMFS with a draft monitoring report within 90 days of the conclusion of the construction work. This report will detail the monitoring protocol, summarize the data recorded during monitoring, and estimate the number of marine mammals that may have been harassed, including the total number extrapolated from observed animals across the entirety of relevant monitoring zones. If no comments are received from NMFS within 30 days of submission of the draft final report, the draft final report will constitute the final report. If comments are received, a final report must be submitted within 30 days after receipt of comments.

Negligible Impact Analysis and Determination

NMFS has defined negligible impact as “an impact resulting from the specified activity that cannot be reasonably expected to, and is not reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival” (50 CFR 216.103). A negligible impact finding is based on the lack of likely adverse effects on annual rates of recruitment or survival (*i.e.*, population-level effects). An estimate of the number of takes, alone, is not enough information on which to base an impact determination. In addition to considering the authorized number of marine mammals that might be “taken” through harassment, NMFS considers other factors, such as the likely nature of any responses (*e.g.*, intensity, duration), the context of any responses (*e.g.*, critical reproductive time or location, migration, etc.), as well as effects on habitat, the status of the affected stocks, and the likely effectiveness of the mitigation.

Consistent with the 1989 preamble for NMFS's implementing regulations (54 FR 40338; September 29, 1989), the impacts from other past and ongoing anthropogenic activities are incorporated into these analyses via their impacts on the environmental baseline (*e.g.*, as reflected in the regulatory status of the species, population size and growth rate where known, ongoing sources of human-caused mortality, or ambient noise levels).

To avoid repetition, the discussion of our analyses applies to all the species listed in Table 3. There is little information about the nature of severity of the impacts or the size, status, or structure of any species or stock that would lead to a different analysis for this activity.

Pile driving and extraction activities associated with the Sand Point City Dock Replacement Project, as outlined previously, have the potential to injure, disturb or displace marine mammals. Specifically, Level A harassment (injury) in the form of PTS may occur to a limited numbers of three marine mammal species while a total of nine species could experience Level B harassment (behavioral disturbance). Potential takes could occur if individuals of these species are present in Level A or Level B ensonified zones when pile driving or removal is under way.

No mortality is anticipated to result from this activity. Limited take of three species of marine mammal by Level A harassment (injury) is authorized due to potential auditory injury (PTS) that cannot reasonably be prevented through mitigation. The marine mammals authorized for Level A take (27 harbor seals, 16 harbor porpoises, and 2 humpback whales) are estimated to experience PTS if they remain within the outer limits of a Level A harassment zone during the entire time that impact pile driving would occur during a single day. Marine mammal species, however, are known to avoid areas where noise levels are high (Richardson *et al.*, 1995). Animals would likely move away from the sound source and exit the Level A zone. Because of

the proximity to the source in which the animals would have to approach, and the longer time in which they would need to remain in a farther proximity from the sound source within a Level A zone, we believe the likelihood of marine mammals experiencing PTS is low but acknowledge it could occur. Although NMFS is authorizing limited take by PTS, the anticipated takes reflect the onset of PTS, which would be relatively mild, rather than severe PTS which would be expected to have more impact on an animal's overall fitness.

Effects on individuals that are taken by Level B harassment, on the basis of reports in the literature as well as monitoring from other similar activities, will likely be limited to reactions such as increased swimming speeds, increased surfacing time, or decreased foraging (if such activity were occurring) (*e.g.*, Thorson and Reyff 2006; Lerma 2014). Most likely, individuals will simply move away from the sound source and be temporarily displaced from the areas of pile driving, although even this reaction has been observed primarily only in association with impact pile driving. In response to vibratory driving, pinnipeds (which may become somewhat habituated to human activity in industrial or urban waterways) have been observed to orient towards and sometimes move towards the sound. The pile driving and extraction activities analyzed here are similar to, or less impactful than, numerous construction activities conducted in similar locations in Alaska, which have taken place with no reported serious injuries or mortality to marine mammals, and no known long-term adverse consequences from behavioral harassment. Repeated exposures of individuals to levels of sound that may cause Level B harassment are unlikely to result in hearing impairment or to significantly disrupt foraging behavior. Thus, even repeated Level B harassment of some small subset of the overall stock is unlikely to result in any significant realized decrease in fitness for the affected individuals, and would not result in any adverse impact to the stock as a whole.

ADOT&PF's planned activities are localized and of relatively short duration. The entire project area is limited to the Sand Point dock area and its immediate surroundings. Specifically, the use of impact driving will be limited to approximately 22 hours over the course of up to 40 days of construction. Total vibratory pile driving time is estimated at approximately 85 hours over the same period. While impact driving does have the potential to cause injury to marine mammals, mitigation in the form of a 100 m shutdown zone should limit exposure to potentially injurious sound.

The project is not expected to have significant adverse effects on marine mammal habitat. No important marine mammal reproductive areas, such as rookeries, are known to exist within the ensonified areas. The project is located within the aquatic zones (*i.e.*, designated critical habitat) of two major Steller sea lion haul outs, and the Level B underwater harassment zone associated with the planned project overlaps with a third. The closest major haulout is approximately 27 km distant. The project activities are limited in time and would not modify existing marine mammal habitat. EFH near the project area has been designated for a number of species. While the activities may cause some fish to leave the area of disturbance, temporarily impacting marine mammals' foraging opportunities, this would encompass a relatively small area of habitat leaving large areas of existing fish and marine mammal foraging habitat unaffected. As such, the impacts to marine mammal habitat are not expected to cause significant or long-term negative consequences.

In summary, this negligible impact analysis is founded on the following factors: (1) The possibility of serious injury or mortality to authorized species may reasonably be considered discountable; (2) the likelihood that PTS could occur in a limited number of animals is low, but acknowledged; (3) the anticipated incidences of Level B harassment consist of, at worst,

temporary modifications in behavior or potential temporary threshold shift (TTS); (4) the limited temporal and spatial impacts on marine mammals or their habitat; (5) the absence of any major haul outs or rookeries near the project area; and (6) the presumed efficacy of the planned mitigation measures in reducing the effects of the specified activity to the level of effecting the least practicable impact upon the affected species. In combination, we believe that these factors, as well as the available body of evidence from other similar activities, demonstrate that the potential effects of the specified activity will have only short-term effects on individuals. The specified activity is not expected to impact rates of recruitment or survival and will therefore not result in population-level impacts.

Based on the analysis contained herein of the likely effects of the specified activity on marine mammals and their habitat, and taking into consideration the implementation of the planned monitoring and mitigation measures, NMFS finds that the total marine mammal take from ADOT&PF's Sand Point City Dock Replacement Project will have a negligible impact on all affected marine mammal species or stocks.

Small Numbers

As noted above, only small numbers of incidental take may be authorized under Section 101(a)(5)(D) of the MMPA for specified activities other than military readiness activities. The MMPA does not define small numbers and so, in practice, NMFS compares the number of individuals taken to the most appropriate estimation of the relevant species or stock size in our determination of whether an authorization is limited to small numbers of marine mammals.

Table 11 presents the number of animals that could be exposed to received noise levels that could cause Level A and Level B harassment for the planned work at the Sand Point Dock Replacement Project. Our analysis shows that between <0.01 percent and 2.89 percent of the

populations of affected stocks could be taken by harassment. Therefore, the numbers of animals authorized to be taken for all species would be considered small relative to the relevant stocks or populations even if each estimated taking occurred to a new individual—an extremely unlikely scenario. For pinnipeds, especially Steller sea lions, occurring in the vicinity of the project site, there will almost certainly be some overlap in individuals present day-to-day, and these takes are likely to occur only within some small portion of the overall regional stock. Table 11. Summary of the estimated numbers of marine mammals potentially exposed to Level A and Level B harassment noise levels.

Table 11. Summary of the estimated numbers of marine mammals potentially exposed to Level A and Level B harassment noise levels.

Species (DPS/Stock)	Estimated Number of Individuals Potentially Exposed to the Level A Harassment Threshold	Estimated Number of Individuals Potentially Exposed to the Level B Harassment Threshold	DPS/Stock Abundance (DPS/Stock)	Percent of Population Exposed to Level A or Level B Thresholds
Steller sea lion (wDPS)	0	960	50,983	1.88
Harbor seal (Cook Inlet/Shelikof Strait)	27	53	27,386	0.29
Harbor porpoise (Gulf of Alaska)	16	33	31,046	0.16
Dall's porpoise (Alaska)	0	4	83,400	<0.01
Killer whale (Gulf of Alaska, Aleutian Islands, and Bering Sea transient or Alaska resident)	0	14	587 (transient) 2,347 (resident)	2.38 (transient) 0.6 (resident)
Humpback whale ¹ (Central North Pacific/Western)	2	30	10,103 (Central NP) 1,107 (Western)	0.32 2.89

North Pacific)			NP)	
Fin whale (Northeast Pacific)	0	6	1,368 ²	0.44
Gray whale (Eastern North Pacific)	0	2	20,990	<0.01
Minke whale (Alaska)	0	3	2,020 ³	<0.01
Total	45	1,105	N/A	N/A

¹The Hawaii DPS is estimated to account for approximately 89 percent of all humpback whales in the Gulf of Alaska, whereas the Mexico and Western North Pacific DPSs account for approximately 10.5% and 0.5%, respectively (Wade *et al.*, 2016; NMFS 2016). Therefore, an estimated 28 animals from Hawaii DPS; 3 from Mexico DPS; and 1 from Western North Pacific DPS.

²Based on 2010 survey of animals north and west of Kenai Peninsula in U.S. waters and is likely an underestimate (Muto *et al.*, 2016b).

³Based on 2010 survey on Eastern Bering Sea shelf. Considered provisional and not representative of abundance of entire stock (Muto *et al.*, 2016a).

N/A: Not Applicable

Based on the analysis contained herein of the planned activity (including mitigation and monitoring measures) and the anticipated take of marine mammals, NMFS finds that small numbers of marine mammals will be taken relative to the population size of the affected species or stocks.

Unmitigable Adverse Impact Analysis and Determination

There are no relevant subsistence uses of the affected marine mammal stocks or species implicated by this action. The planned project is not known to occur in a subsistence hunting area. It is a developed area with regular marine vessel traffic. Additionally, ADOT&PF has spoken with local officials about concerns regarding impacts to subsistence uses and none were expressed. Therefore, NMFS has determined that the total taking of affected species or stocks would not have an unmitigable adverse impact on the availability of such species or stocks for taking for subsistence purposes.

Endangered Species Act (ESA)

Issuance of an MMPA authorization requires compliance with the ESA. There are four DPSs of three marine mammal species that are listed under the ESA with confirmed or possible occurrence in the study area: the WNP DPS and Mexico DPS of humpback whale; the western DPS of Steller sea lion; and fin whale. The NMFS Alaska Regional Office (AKR) Protected Resources Division issued a Biological Opinion in September 2017 under section 7 of the ESA, on the issuance of an IHA to ADOT&PF under section 101(a)(5)(D) of the MMPA by the NMFS Permits and Conservation Division. The biological opinion concluded that while the issuance of the authorization may adversely affect members of these listed species it is not likely to jeopardize the continued existence of any listed marine mammal species or destroy or modify any critical habitat.

Authorization

NMFS has issued an IHA to ADOT&PF for the potential harassment of small numbers of nine marine mammal species incidental to the Sand Point City Dock Replacement Project in Sand Point, Alaska, provided the previously mentioned mitigation, monitoring and reporting.

Dated: October 17, 2017.

Catherine Marzin,
Acting Deputy Director,
Office of Protected Resources,
National Marine Fisheries Service.

